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ABSTRACT

This paper summarizes several studies about children and childrearing within the broader context of questions about the processes of social and physical cognition of both children and adults. A brief background section covers some reasons for being interested in parents' ideas and discusses some general models, borrowed mainly from work on cognitive development in children, that were brought to research on adults. Results from studies about changes over time in parents' ideas are discussed in relation to three areas: expectations for child behavior related to the child's age, ideas about parental influence and responsibility, and ideas about how children learn. The final sections look at practical implications of these results for those interested in changing parents' ideas in intervention programs and concerned with the theoretical implications for research on models of cognitive development. Among the latter are (1) possible minimization of reported differences between children's and adults' thought when topics of interest throughout life are assessed; (2) modification of the traditional Piagetian model of children's cognition; and (3) an alternative approach to conceptualizing separate social and physical domains of knowledge, which emphasizes the importance of the amount of received and negotiated knowledge, the availability of information, motives for acquiring information, and affect for both domains. (CB)

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Adult Social Cognition: Implications of parents' ideas for approaches to development

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Studies of cognitive development benefit from exploration across a range of content areas and age levels, with the results from one age level or domain supplementing and challenging proposals based on results from another. This paper describes such an effect. The research started with questions related to parents' ideas about childhood and parenting, using this domain as a step towards filling gaps in accounts of adult cognitive development and of socialization. The end-result was a questioning of the way cognitive development is usually described, for both adults and children and for both "physical" and "social" cognition.

The two main research questions are as follows: (a) How can we describe parents' ideas? What domains or dimensions will differentiate among parents or be useful to work with? (b) What conditions will be related to change or variation in parents' ideas? We shall be presenting some results related to both questions.

The broader picture concerns both practical and theoretical implications. To explore the practical use of knowledge, we have chosen a specific case, one in which altering parents' ideas has been a route to improving interactions with premature infants. That case raises as well the theoretical issue of relationships between ideas and overt actions.

The main theoretical implications however, have to do with our understanding of what cognitive development covers and how it came about. We brought to the adult work some particular models or expectations, based largely on work with children, found they

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did not fit well with the adult data, and came to consider that we should re-examine and modify our original assumptions.

One of the main modifications has to do with creating a larger space for value, function, and affect: in short, for factors other than simply taking information into account. In fact, we have come to propose that models of cognitive development place their stress on information and on intrinsic curiosity largely because they have concentrated on content areas where "social" factors play a relatively small part. With the move to "social" cognition, the need for change in the usual models becomes more apparent.

Also in need of a second look, we propose, is the distinction between "physical" and "social" cognition. We plan to offer one more set of answers to that perennial question: What is "social" about "social" cognition? To anticipate, we plan to suggest some other ways in which we may make distinctions among domains of thought.

To trace the way we reached these end states, we shall begin with a brief background section, covering two starting points: (a) some reasons for being interested in parents' ideas, and (b) some general models or expectations that we brought to the adult work, borrowed in the main from work on cognitive development in children. This section is followed by three research sections. Each describes a specific study together with the possibilities it offered for further work and the questions it raised about our original expectations. The final sections look at a practical extension and at the general changes we suggest for approaches to cognitive development.

Starting Points

Some Reasons for Interest in Parents' Ideas

An interest in parents' ideas is now to be found in diverse forms and in several places, with Macquarie being one of them. A general picture of the work may be gained from the chapters in Sigel (in press), from a review article by Goodnow (in press b), and from a recent paper by Russell (in press) concentrating on ideas and actions.

For our own part, one general reason for interest was the wish to gain a broader picture of cognitive development. There have been in recent years a number of expansions on the classical picture, using that term to refer to knowledge based on Piagetian models: the move towards "everyday" or "real" tasks, the exploration of contextual effects, the very interest in "social" cognition itself and its building of links between developmental and social psychology. We hoped to add to that expansion by giving attention to two gaps that seemed especially glaring. One of these was the relative lack of knowledge about adult cognitive development, added to by a lack of continuity between accounts of adult cognition and child cognition. The other was the relative lack of connection between the literature on cognitive development and the literature on socialization. With a background sense of these gaps, we began looking more carefully at work on adult cognitive development and on socialization. Both roads led to parents' ideas about development and parenting. Following that direction, we must add, was all the more attractive because it held out the promise of some applied aspects and of being a fruitful training base for students.

Adult Cognitive Development. One particular difficulty in approaches to adult cognitive development, and in linking work on children with work on adults, is that the one is usually described in terms of positive change, the other in terms of deterioration and decay. As Flavell noted in 1970, we know relatively little about adult change of a positive kind (Flavell, 1970). One of the "new looks" in development, in fact, consists of more benign proposals.

Some of these proposals concentrate on aspects of ability. We may, for instance, regard adult life as a period of gaining wisdom and expertise (Baltes, Dittman-Kohli, & Dixon, in press). That view, together with the proposal that some aspects of ability are

at least maintained over age, combines well with arguments for adult change as based on specific experience and environmental demand (e.g. Baltes & Labouvie, 1973; Baltes & Willis, 1967; Labouvie-Vief, 1982; Schaie, 1973).

The evidence for adult growth, however, is not startling in studies of ability as measured by psychometric tests. The problem may lie in the nature of the measures. We may do better, for instance, if we look at changes in social cognition, on the assumption that this domain may be more readily linked to changes in life-situation. An example is Epstein's work (1981) on women lawyers, re-entering the paid labor force and developing forms of competence they had not previously displayed. In such cases, change occurs in self-esteem and in what is seen as possible. Some further examples are to be found in Mortimer and Simmons' (1978) review of work on adult socialization, and in work by Feldman and her colleagues on changes in ideas about sex roles with changes in one's position in the family life-cycle (Abrahams,Feldman & Nash, 1978; Feldman, Biringen & Nash, 1981). The notion that parents' ideas might provide a further example comes from Flavell (1970). Building on work by Stolz (1967), he suggested that parenting was a form of experience that might well produce evidence of positive change in adult thought, with ideas becoming over time more differentiated and more in line with reality.

For us, Flavell's (1970) suggestion was especially attractive because of its link to some broader descriptions of "culture" and possible adult socialization. These descriptions are in terms of prevailing ideas about human nature and development. Historians and psychologists, for instance, have used such ideas as a way of describing the difference between one historical period and another (e.g. Aries, 1962; Kessen, 1979; Lomax, Kagan, & Rosenkrantz, 1978; Pinchbeck & Hewitt, 1969, 1973). Anthropologists and psychologists have used them to describe differences among contemporary cultures (e.g. Hamilton, 1981; Whiting, 1963) and the nature of cultural change as a traditional culture becomes "modern" (Whiting & Marshall, 1982). From such work, it seemed a small next step to regard parents' ideas as changing to fit with parental experience.

The socialization of children. For a number of scholars, the starting-point for an interest in parents' ideas has been an interest in parents' behaviors, and a growing awareness of the lack of data about ideas that may influence those behaviors (Dix & Grusec, in press; Hess, in press; McGillicuddy-de Lisi, Sigel & Johnson, 1979; Parke, 1978). The awareness has been prompted in part by noting the lack of continuity between work with children and work with adults. Most current work with children, for instance, is marked by an acceptance of the notion that the effect of events upon children is mediated by the schemas or constructions children use to interpret events. That understanding of children is not reflected in research with parents (Dix & Grusec, in press; Grusec & Dix, 1982). Parke (1978) in fact has described most psychologists, in their analyses of mother-infant interactions, as treating the mother as if she were at the same level of cognitive complexity as the infant.

The awareness of a lack of data on parents' ideas does not, however. reflect simply an extension of approaches generated by research with children. An important further source is the emergence of some particular results. A case in point is the finding (Dix & Grusec, in press; Grusec & Dix, 1982) that mothers' responses to children's behaviors are particularly affected by the way mothers divide behaviors into groups or categories (e.g. dividing "misdemeanors" into active misdeeds, such as fighting, and failures to be prosocial, such as not sharing). Such data prompt a search for parents' categories, and for their ideas about how behaviors in different categories are best treated (Grusec, personal communication).

Some General Expectations about Development

Having decided to work on parents' ideas, we needed to find a way to begin. To the work, we brought some inter-related expectations, strongly affected by work with children:

(a) That change would be more likely than no change over the course of parenting.

(b) That the basis for change would be a response to new information. This expectation carries with it the assumption that parenting provides information one can absorb, and the assumption that people are interested in new information.

(c) That the direction of change would be positive, in the sense of ideas moving towards greater clarity or differentiation, or towards a "better fit" with the lessons of experience.

(d) That the task might best proceed by exploring parents' ideas in three areas: ideas about goals or ends; ideas about conditions affecting the reaching of goals; and ideas about how to assess the nature or current state of a child.

These are the expectations we shall keep returning to in the course of looking at results. We shall briefly spell out their background.

The expectation of change. Change seemed likely for several reasons. In general, adults do not present the kind of barrier we usually think of as holding back children's cognitive development: namely, a lack of intellectual capacity to absorb the information provided. It also seemed probable that if any change occurred in adults' ideas about people, parents' ideas about children and parenting were good candidates for change. Parents are in many ways novices; children are important to them; their children's behaviors are not completely predictable. All these are conditions that seem to invite some re-thinking. Finally, parental change fitted with the feeling - on the part of the two of us who were parents - that our ideas had changed in the course of parenting, and with a view of adults as developing their own "personal constructs" (Kelly, 1955).

The basis of change. We started with a strong bias towards information as the major base of change. Like Flavell (1970), we were sympathetic towards Stolz's (1967) description of parenthood as a period of "reality-testing": a time when ideas about children and parenting were checked, affirmed, modified, or discarded. That type of proposal has a great deal of intuitive appeal. It fits also with a prevailing image of children's cognitive development as based - most of the time - on an active interest in information and an accommodation of ideas to the events encountered. Finally, it fits with longitudinal data on the way parents change their ideas about their children's abilities as feedback becomes available from school performance (e.g., Entwisle & Hayduk, 1978, 1981).

The direction of change. Apart from occasional cases of "regression", we usually think of development as being in a positive direction.

The description of parents' ideas. We faced from the start the need to find dimensions and content areas that would allow measures of change and variation. That search was in many ways our first encounter with gaps within conventional definitions of what cognitive development covers. We simply did not have available to us a ready-made language or framework that meshed neatly with ideas parents might hold about the nature of children or the nature of parenting.

We decided to start by checking through the literature on parents for suggestions about variations in ideas (Goodnow, 1982, in press a). We also asked: What do parents themselves appear to be thinking about or using as a base when they interpret behaviors? What is the nature of such parental work? The combination of questions led us to a division of parents' ideas into three very broad domains: ideas about goals or "end-products", ideas about conditions that affect the reaching of goals, and ideas about how to assess the material one is working with (roughly, the use of "omens", "cues" or "signs" to assess the "nature" of a child or its current state).

The first domain overlaps with a literature often phrased in terms of "values". The second overlaps with a literature attributions and on the perceived influence of heredity

and environment. The third is the more novel. It reflects largely the everyday observation that parents spend a great deal of time and effort in locating "signs" that will help them determine how well a child is doing or predict its future. Fischer and Fischer (1963) in fact regarded such "divining" as one of the most salient characteristics of parents in Orchardtown, U.S.A. These parents, in the Fischers' description, regarded children as a collection of partially hidden "potentials". They also regarded themselves as having the obligation to "divine" that potential and then to arrange the environment so that potential could be maximized. Some attempts at predicting, "divining", and evaluating, we considered, occur among all parents and we were eager to have this part of parents' work represented in our approaches to their ideas.

Within each of the three domains, we also expected that one of the most useful steps would consist of locating categories of behaviors: that is, coming to learn how parents grouped behaviors, regarding some - for example - as more desirable, more attainable or as having more predictive value than others. That expectation, one may note, may be regarded as a follow-through from work on social cognition with children. Within work on moral reasoning, for instance, one helpful step has been the recognition that children differentiate among "misdeeds", regarding some behaviors as violating "social" rules while others violate "moral" rules (e.g. Nucci, 1981; Turiel, 1978). We expected to find parents' groupings or categories to be equally useful.

Overall, as the preceding statements imply, our original expectations were for positive change to be likely, for information to be its basis, and for some broad areas of content to be useful markers of change and variation. We shall now see how those expectations worked out in practice.

Ideas about Age and Development

To the extent that parents hold any kind of informal theory of development, they should entertain some ideas about the relationship of behavior to age. That they do so is suggested by comments about children being "smart for their age", being "late bloomers", or "normal for their age". To such suggestions that parents have ideas about age-norms, we have added the possibility that they also entertain ideas about the stability of behavior over time, regarding some behaviors as fleeting while others are likely to mark some enduring quality. In a very broad sense, one might say that these ideas are aspects of parents' "developmental scripts" or "developmental scenarios". They may be expected to form an important basis to parents' task-setting and to their assessments of how well a child is progressing.

What conditions are likely to affect ideas about age-related behavior? We began with the goal of combining differences in cultural background with some differences in individual experience.

The notion that cultural background makes a difference to ideas about the nature of childhood is widespread. Combining variations in cultural background with variations in individual experience is a step less often taken. One such study is Ninio's (1979) comparison of ideas about early development held by mothers in Israel who came from two cultural groups and who varied also in the age of their child (1 or 3 years). The study we shall concentrate upon is Australian (Goodnow, Cashmore, Cotton, & Knight, 1981, in press). The adults in the sample were mothers. Half the sample was born in Australia; half born in Lebanon (the children of these mothers spoke at home either only Arabic or a combination of Arabic and English). All of the mothers were enrolling a child for the first year of school (the child was between 4:9 and 5:5 years old). For half the sample, this child was the first to enter school; for the other half, not the first. This degree of contact with the school system, and the implied difference in years of parenting, was the factor reflecting the parents' experiences in parenting. To it may be added also differences in years of education (0 to 19 years in the Lebanese-born group). In general terms, we expected that experience with the Australian school system, and with any school system, would move the expectations of the Lebanese-born mothers towards those held by the Australian-born.

"Timetables"

Mothers were asked whether they expected a child to master each of 40 behaviors at ages 4-5 years, before 4, or after 6. The specific behaviors are much the same as those used in the study by Hess, Kashigawi, Azuma, Price, and Dickson (1980) and were generously lent in advance of publication by Robert Hess. The results may be simply stated. First, mothers did differentiate among behaviors: that is, they expected some earlier than others. The only significant factor was cultural background. Mother's education, child's gender, and child's birth order had no effect. The two cultural groups differed most strongly in their age-expectations in the two areas found by Hess et al. (1980) to discriminate between mothers in the U.S.A. and in Japan: "verbal assertiveness" (e.g., "asks a question when in doubt", "can express a preference or opinion if asked"), and "social skills with peers" (e.g., "gets own way by persuading others", "initiates friendships", "is sensitive to the feelings of others"). Mothers in the U.S.A. and Australian-born mothers expected skills in these areas at an earlier age than was expected by the Japanese or the Lebanese-born.

The cultural difference was also the only factor yielding a difference on two open-ended questions about timetables. After describing an average day for the child in question, mothers were asked: "Does your child have any tasks around the house or in his/her room? And will that be the same when the child is a year older?" The Australian-born mothers assigned more tasks, often commenting on the value of early training. They also mentioned more changes in tasks from one year to the next, often adding the rationale that the child would be "a year older". In contrast, the Lebanese-born mothers assigned fewer tasks (although minding a younger child received more frequent mention than from the Australian-born). The Lebanese-born also mentioned either no planned change or a change based on the need of the mother (e.g., "My next baby will be born by then and I shall need the help").

Results and expectations. How well do these results fit our original expectations and reasons for interest?

The most rewarding result is that ideas about timetables turn out to be a rich area for exploring ideas about development and for broadening our notions of what cognitive development may cover. As a start, it has been possible to locate some of the ways in which parents differentiate among behaviors, expecting some at earlier ages than others, and to relate these groupings to differences in national background.

The exploration of ideas about age, however, need not be restricted to ideas about age-norms. On the contrary, a number of aspects of developmental scenarios emerged as promising.

One is the extent to which a parent expects that a change in age is sufficient for a change in tasks or skills, arguing, for instance, that "she will be older, so ...," or "now that he is 10, ...". Such arguments might reflect an age-oriented culture, or the reliance of novices on a single cue that is easy to use. A second possibility is the extent to which a parent considers that "earlier is better". We have come to recognize that, within the Lebanese and a number of other cultures, the attitude towards household skills is often one of acquiring them when needed, rather than believing that "earlier is better". Within cultures also, experience may alter this aspect of ideas about age. In a current study of household tasks by Goodnow and Delaney,for instance, an Australian-born mother provides an example, describing why she gives few tasks to her third child: "I used to think you had to start it all when they were young, but now I'm more relaxed. I didn't start as early with the second as with the first, and they've both turned out all right". The third area for possible change is the particular set of behaviors to which a parent - in the light of experience - would now attach the notion of "earlier is better" rather than the idea that "you can wait". In effect, change could occur in the content areas seen as requiring an early start.

Finally, we would now suggest, for any study of timetables, the need to consider the band of ages that a parent would find as acceptable for the appearance of a behavior. That is, we would propose looking not only for the usual expected age, but also for the lower and upper limits: the ages at which appearance would seem "oddly early", and non-appearance "worryingly late". Such a band would build on Bell and Harper's (1977) proposal that parents judge behavior on the basis of a "zone of reference", adding the notion that it is the zone or band that is open to change.

In effect, we emerged with a number of ideas about possible ways of describing variation and change in parents' ideas. We did not, however, emerge with evidence of effects from mothers' individual experience and the information it provides. Perhaps the results for expected stability will be different.

Stability

To explore this content area, we asked mothers: "If a child is like this at age 6, what do you think is likely at age 12? Do you think it is likely to last, or to change?" The behaviors ranged from aspects of ability to aspects of style. In terms of relevant factors, the results may be even more simply stated than those for age-norms. All mothers - regardless of cultural background - expected "desirable" qualities (e.g., "understands easily", "is organized") to last, and "undesirable" qualities (e.g., "is easily upset by mistakes") to change.

That type of result has been taken further by Rosemary Knight, asking mothers and fathers of children aged 4, 7 and 10 years to make a judgment about the likelihood of change in a quality from ages 6 to 12 years, and to state how satisfied they were with the child's current progress in the same area. The qualities again covered a mixture of "cognitive", "social", and "style" qualities (e.g., "understands easily", "expresses love and affection", "is well-mannered", "tries hard", "has a sense of humor").

Knight's (1983) result takes the form of a strong canonical correlation between perceived stability and degree of satisfaction with current progress: $R^2 = .81$, for mothers, $R^2 = .79$ for fathers. Knight's (1983) data also yielded no significant effects from other factors: from the age or gender of the child, or the gender of the parent. The sample was "Anglo" and restricted to a middle socio-economic range, so that the effects of culture or socio-economic status do not arise.

Results and expectations. Once again, the most positive result turns out to be the indications of interesting content areas to explore. This time, the promising content area consists of the "predictive value" that parents and others assign to behaviors. Stability judgments, we suspect, are part of a more general set of explorable ideas about sequence and prediction: ideas about necessary prerequisites, for instance, about "critical periods", or about the significance of various "signs" at one age for development in another.

The unexpected aspect of results is the way they point towards the role of need or function. Believing that things will improve - a position of "developmental optimism" - is useful. It allows one to continue with the task of parenting. In contrast, the picture does not look promising for any effect from individual experience on parents' ideas about stability. In fact, demand - the need to believe - appears to be the major factor, combined with some attention to the quality of particular behaviors.

Some further results, however, keep alive the possibility that "values" and "needs" are not the only processes involved, and that parents are taking into account information about some other features of behavior. Within the stability expectations, one item ("is energetic and active") showed a clear sex difference (higher expected stability from mothers of preschool girls than for mothers of preschool boys). Such a quality is less stereotypic of girls than of boys, and mothers may note its appearance in a girl as

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indicating more of an "inbuilt" dispositional quality than they would for its appearance in a boy. This particular effect does not emerge with any clarity in Knight's (1983) study. The type of effect, however, is consistent with results from attribution theory, and is being explored further by Lisa Bird from the University of Wellington in New Zealand.

Stronger evidence comes from Dix and Grusec (in press). They have reported two important studies. In both, parents of children aged 4, 8, and 12 years were asked to give their attributions for behavior presented in vignette form. Study I sampled mothers and fathers, and negative behaviors: either actual misconduct (stealing, lying, fighting) or failure to be prosocial (not sharing, not helping, being insensitive). Study 2 sampled mothers only, but covered both negative and altruistic behaviors (helping, sharing, showing concern). We shall note for the moment one particular result, highlighted by Study 2. Dix and Grusec noted that "type of child behavior ... was a significant determinant of every social influence we measured. Altruistic responses were seen as more stable, general, intentional, controllable, and more the result of dispositions in the child than were either failure to be altruistic or active misdeeds. Given the identical situation, why should parents think that sharing the cookies is more intentional, controllable, and dispositional than not sharing them; or that helping pick-up spilled items is more intentional, controllable, and dispositional than not helping?" (Dix & Grusec, in press, p. 39). Dix and Grusec (in press, p. 39) suggest that one factor is the parents' recognition that altruistic behavior is "undertaken at a cost to the child, while failure to be altruistic and active misconduct actually provide benefits". Behavior that is not in one's own obvious self-interest, as models for adult behavior suggest (Jones & Davis, 1965; Kelley, 1972), may be especially likely to be thought of as stemming from a disposition.

Implications

We have already pointed to some interesting and explorable content areas. What we now wish to emphasize is the extent to which the results raise questions about the impact of individual experience and the information it provides.

At this point, we have two challenges to the notion that parents' ideas change in response to the information they gain in the course of normal parenting. The first is suggested by the significance of cultural background for developmental timetables, coupled with the insignificance of differences in mothers' education, child age, or child gender. Such an effect suggests that at least in this content area parents are working less from "personal constructs" (Kelly, 1955) than from schemas provided for them by others. In absorbing such ready-made schemas, they may be said to be responding to information, but without the degree of thought or individualization that the notion of "personal construct" or "reality testing" implies. To use a term from Shweder (1982), the ideas seem to be somewhat "pre-packaged".

The second is the appearance of a possible double basis to parents' ideas. On the one hand, there is the information gained in the course of parenting (although evidence for that is not yet compelling). On the other is the presence of a functional basis. Ideas about stability, for instance, may reflect what one needs to believe in order to continue with the task of parenting. It is the possibility of a functional basis that we had underestimated. Once alerted to it, other compatible evidence became easier to find. Pharis and Manosevitz (1980), for instance, have compared two groups of young adults: a group about to be parents, and a group with no current intention to be parents. The former emerged as judging babies to be less difficult, less disruptive of one's life, and competent at an earlier age than did the latter. For people about to be parents, minimizing the problems probably has a functional value; for people who do not yet wish to be parents, maximizing the problem has value. A second example comes from a study by Hess, Price, Dickson and Conroy (1982). Mothers and teachers in full-day preschool centres were alike in expecting earlier competence than did teachers in half-day centres. One suspects also that grandparents - for similar reasons of lesser need or responsibility - would also have relaxed developmental timetables.

Recognizing a larger role for need or necessity, however, does not mean that these factors can have undisputed sway over ideas. It might appear, for example, that the behaviors expected early by parents are the behaviors they especially value. We would not, however, want to accept value as the only factor. In the normal course of events, feasibility should surely be taken into account. All told, an early expectation probably combines ideas about value, feasibility, and the possible dangers of starting "late", allowing some competitive behavior to creep in. The general task is really not one of arguing for information vs. need or value as single factors, but of sorting out the way they interact and the conditions that at times give one a stronger weighting than the other.

As a more immediate step, what has arisen is the possibility that if we wish to explore further the effects of individual experience, we may need to shift to some other content area within parents' ideas, that is, to ideas other than developmental timetables or perceived stability. These are areas where we now know that the effects of culture and of a functional basis are strong. We chose parents' ideas about parental influence and responsibility.

Study 2: Ideas about Parental Influence and Responsibility

Some time ago, Kohn (1963) suggested that parents' ideas about methods might be more amenable to change than their ideas about what they thought children should be. People read books, magazines, or columns of advice to parents, he argued, for advice on how to achieve goals that remained unexamined. In addition, he proposed, the historical changes noted by scholars such as Bronfenbrenner (1958) were predominantly changes in ideas about methods rather than changes in values.

Within the general rubric of ideas about methods for child-rearing, we may place two specific sets of ideas. One refers to divisions of labor: in the present case, divisions of labor between parents. The second refers to ideas about the amount of influence one has over various aspects of development. The work of Knight (1981, 1983) combines attention to both aspects. It extends some earlier work on ideas about divisions of labor by Russell (1979), and on perceived influence by Goodnow et al. (1981) and by Russell and Russell (1982). It is linked also to an argument by Freeberg and Payne (1967) to the effect that knowledge about parents' perceptions of their influence is in short supply, surprisingly so given the importance psychologists usually assign parental influence.

Knight's main sample (Knight, 1983) contains 60 couples (60 mothers and 60 fathers) with children (all first-born) aged either 4, 7, or 10 years. The sample was intended to capture variations in experience represented by being a mother rather than a father, by years of parenting, and by the first-born being a boy or a girl.

Divisions of Labor

If children were in school, parents were asked: "Does your child get very much help with schoolwork or homework?" If children were not yet in school, the question became: "Do you expect to give help?" If the answer was "yes", the next question was: "Who helps (or is likely to help)?" At age 4, 89% expected to help; the modal expectation was that both parents would help (57% both, 31% mother, 12% father). For parents of 7 year olds, the percentage of parents helping had dropped to 53%; the modal pattern had become one of it being mostly mothers' work (26% both; 63% mothers; 11% fathers). The same pattern applied for parents of 10 year olds: 68% reported giving help; 24% of these reported help from both parents, 65% from mothers, 11% from fathers.

Results and expectations. We could propose several explanations for Knight's (1983) results on divisions of labor. The one we offer is in terms of a shift from an idealized picture, based on experience providing information about the feasibility or the

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difficulty of an original hope. That proposal has some generalization value i.e. it could apply beyond ideas about divisions of labor. We can, in fact, apply it immediately to some further data of Knight's (1983) on parents' estimates of children's positions in their school class.

Knight (1983) asked parents to rate children on progress in school: as one of the best in the class, above the middle, in the middle, below the middle, near the bottom. Parents of 7 year olds gave most of their answers to the top two rankings (76%). Parents of 10 year olds were less enthusiastic (50% in the top two ranks). At both age levels, the remainder of the ranked positions were mostly "in the middle" (20%, 32%). (It needs to be remembered that these parents were volunteers, and were not the total sample of parents in a class, a factor that could account for an apparent bias towards high expectations but not for the age difference.)

The shift appears again to be from one of original high hopes to a more realistic picture. That type of change, with an important addition, accounts as well for a finding by Entwisle and Hayduk (1978, 1981) in a longitudinal study of parents' expectations of children's marks over the first years of primary school. Within a middle-class group, these expectations did change towards a more realistic picture. The important feature to Entwisle and Hayduk's (1981) work is that the basis for change was specified. It lay in the mothers' greater knowledge of how marks had to be distributed: that is, in their awareness of the mean and the range. Mothers did not necessarily change their views about a specific child's ability. Acquisition of knowledge about the range of possibilities - the nature of the competition in this case - seems then a promising aspect of ideas to link with increasing experience.

Perceived Influence

In two studies, parents have stated that their influence over children declines as the child grows older, particularly once the child enters school (Knight, 1981; Newson & Newson, 1976). These statements were made in response to open-ended questions about influence in general. To take such possibilities further, Knight (1983) selected behaviors and qualities to represent three domains: social (e.g., "expresses love and affection", "is well mannered and well-behaved"), cognitive (e.g., "understands easily", "catches on quickly", "is able to think things out, to reason and solve problems"), and style (e.g., "is not easily distractible and holds interest in tasks", "is imaginative and creative - e.g. at painting or making-up stories"). Later item analyses showed that the parents used two categories: one covering the investigator's "cognitive" and "style" groups, the other covering "social" behaviors.

Parents rated each quality for how much influence they felt they had over it. They also rated each item for the amount of influence they perceived teachers had over it, a check on whether a characteristic was seen as open to all forms of influence or as differentially open to the influence of particular people.

Results and expectations. Once again, we emerged with some interesting ways to describe parents' ideas and the way parents differentiate among behaviors. We have already mentioned that on item analysis parents used two categories, dividing behaviors into "social" and "cognitive" domains. A further basis for categorization comes from comparing parents' perceptions of their own influence with their perceptions of teachers' influences. The comparative ratings yielded three groups:

(a) A group where parents' ratings of their own influence far exceeded the influence they attributed to teachers. These were predominantly the "social" items.

(b) A group where parents perceived the influence of parents and teachers to be equal or close to equal. These items referred to general aspects of ability and achievement (being curious and interested, for example, thinking things out, trying hard, expressing things easily in words, catching on quickly).

(c) A small group where parents perceived the influence of teachers to exceed their own. This group covered two specific school skills ("doing well at school", "is not easily distractible and holds interest in tasks").

With a knowledge of that type of grouping, it would now become interesting to ask - as one step - whether teachers give the same ratings, or whether they see their influence as exceeding that of parents in more than the two specific areas that this group of parents allotted them. As in attribution studies, a position of responsibility for development, combined with greater opportunities for observation, may alter one's perceptions of influence and of feasibility.

The unexpected result was again one of limited evidence for experience. With one clear exception, we did not find data supporting the notion that experience in parenting would change parents' ideas about the extent of their influence. Child age (and child gender) were not significant effects.

The exception is related to whether the parent is a mother or a father. Mothers and fathers were highly similar on items in the "cognitive/style" area. They were also close to alike in their perceptions of teachers' influence (mothers gave teachers somewhat more credit for influence overall). They differed, clearly, however, on items in the "social" area (mothers perceiving their influence as higher than fathers saw theirs). On a 5-way analysis of variance, the interaction between domain, parent gender, and parent/teacher influence was significant.

This interesting interaction takes an important step towards unravelling any effects from experience. It also points up, however, the need to be cautious in one's inferences. In this particular case, we have at last signs of an effect from the type of parental experience. We cannot yet tell, however, whether the mother/father difference reflects experience, responsibility (and the need to believe in one's influence), or both.

Implications

As with the study on ideas about age and development (timetables and stability), we need to review progress in two directions: (a) finding ways of describing parents' ideas, preferably ways that might reflect change and broaden our picture of cognitive development, especially among adults; (b) locating conditions and processes that might be related to change.

As with the first study, we are again doing well with the task of finding interesting ways to describe parents' ideas, ways that open some fresh vistas in the description of cognition. As with the first study, we are also presented with some puzzling questions about the effects of individual experience and the information it provides. These are critical questions if we are to think of cognitive development as based less on structural change than on change in one's knowledge and one's opportunities to test ideas. In other words, these are questions of particular importance for exploring adult cognitive development.

The questions are threefold: (1) Are there other studies supporting the notion that mothers and fathers will differ in their ideas, in ways that seem attributable to different types of experience in parenting? (2) Is it likely that change requires particular forms of experience? The difference between mothers and fathers, for example, or between 4 and 7 years of parenting, may not be sufficient to bring about a difference in ideas about parental influence. These two questions are directed towards accounting for why differences are not as easy to find as we expected. The third looks towards accounting for any differences we do locate. (3) How far can we attribute differences in ideas to differences in experience?

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Possible effects from experience and information. Bear in mind that the general case for positive cognitive changes among adults rests on relating changes in ideas to changes in experience. Knight's (1983) finding of one area of difference between mothers and fathers is a promising sign. It cannot, however, stand alone. Can we add to it other data reporting differences between mothers' and fathers' ideas that seem attributable to differences in experience? There are some.

One comes from work by Russell (1983). Fathers - after they take on a larger share of caregiving - recognize that the task of parenting is more demanding, less straightforward, and more isolating than they had expected. In this respect, experience seems to move fathers' perceptions closer to mothers' perceptions.

A second result comes from Stolz (1967). She reports a difference between mothers and fathers in the frequency with which parents attributed their actions to beliefs or values as against "other influences" (e.g. the pressure of a particular time or place, or previous experience with trying to follow through on a general belief with a particular child). "Other influences" were mentioned by mothers in 63% of their statements about reasons, compared with fathers' 53%, an apparently small difference but statistically significant. The recognition that one's ideas about "good" parenting need to be set aside as not feasible at particular times - treated as ideals rather than practicalities - seems likely to reflect experience.

A third result comes from a large-scale study at E.T.S., reported by McGillicuddy-de Lisi (1982) and by Sigel, McGillicuddy-de Lisi and Johnson (1980). It is again in the form of a difference in the relationship between ideas and actions. Mothers and fathers were similar in their beliefs about the way children learn. They differed, however, in the degree to which their ideas were linked to observed actions. The relationship was significant for fathers but not for mothers (.15 compared with .10 in a path analysis reported by McGillicuddy de Lisi, 1982). On the two tasks used as measures of actions, mothers also displayed behavior that was more task-specific than did fathers. For mothers, in fact, correlations for types of action across the two tasks were not significant (Sigel, 1982), suggesting again that mothers are more inclined than are fathers to follow the demands of a specific situation rather than general principles.

In effect, the most promising signs of difference in ideas related to variations in experience lie in the greater differentiation of ideas with experience: a differentiation that appears in ideas about means or methods rather than about goals. People involved in daily caregiving are less inclined to believe that general principles can be followed through with specific children in specific situations. The nature of an expert's learning, it appears, lies in the addition of many qualifications to an idea: "it all depends". A lesser knowledge seems to allow also a simpler link to action.

The critical aspects of experience. Suppose we assume for the moment that any differences observed between mothers and fathers are the result of differences in experience. We would next need to ask: What are likely to be the critical aspects of experience? Given the small evidence to date for mother/father differences, we have not taken that question very far at all. We would draw attention, however, to a specific proposal for how differences might emerge. On the basis of studies of families where care is truly shared by mothers and fathers (Russell, 1982a; 1982b; Russell & Radin, 1982), Russell and Radin have proposed that changes in fathers' ideas do not come from any simple increase in exposure to children, from "helping mothers", or from "holding the fort" until the mother returns. Change occurs only, it is argued, when fathers assume real responsibility for an area (Russell & Radin, 1982). Until that happens, the need to re-evaluate one's ideas is apparently not sufficiently strong.

Isolating experience as the critical factor. We are still not sure when mother/father differences are the result of differences in experience and when they represent differences between males and females, regardless of experience in

parenting. This problem of inference gives one pause, regardless of whether one's primary interest is in mother/father differences per se or if one is using mother/father comparisons as prime markers for the effects of experience.

The same problem of inference, we may note, arises also when we analyze the effects of a child's age. Suppose, for instance, that it were firmly established that the parents of 7-year olds perceive themselves as having less influence over child development than do parents of 4-year olds. Could we infer that the difference reflects an effect from experience? Or is there a prevailing belief in our culture - common to all parents and to non-parents - that the younger the child, the more malleable?

The way round the problems of inference does not lie in shifting to longitudinal studies. Some problems would arise regardless of whether a design was longitudinal or cross-sectional. A more feasible solution seems to lie in the selection of particular content areas. There are, for instance, content areas where parents' ideas diverge from folklore. Folklore, for instance, favors a belief in "maternal instinct". Mothers' lesser belief in it than fathers' (Russell, 1979) must then reflect some other factor: the reality of finding oneself uncertain, or the wish to believe equally in fathers' competence.

There are also content areas where there is no prevailing folklore but where parents differ among themselves. Knight's (1983) finding that mothers rate teachers as more influential than fathers do is an example.

Both types of content area will be essential if we are to untangle several sources of change in parents' ideas or if we are, on a broader scale, to explore differences in ideas in relation to differences in experience.

Study 3: Ideas about the Nature of Learning

In this last section dealing with specific studies, we wish to draw upon a study by another graduate student at Macquarie: Andrew Reiner (Reiner, 1983). The work is a longitudinal study of an "alternative" school established as a parent cooperative. It was not originally intended to be an analysis of change in parents' ideas about the way children learn, but turned out to provide some very helpful information about the nature and conditions of development and to prompt some questions one might ask in any study of change.

Who is interested in changing their ideas? You might expect that parents who start or join an alternative school will hold some non-traditional views about education and will be open to learning more about the value of a progressive approach. For some parents, that was true. A number had read widely on the issue of "progressive" education, and continued to do so. For many, however, the primary interest was not in changing their own ideas. The motivation lay in a sense that their own schooling had been an unhappy experience: one they would not wish their children to repeat. For some, the push came from recognizing that their child was deeply unhappy at school and not achieving, a situation overcoming a strong initial distrust.

In effect, even people who were alike in having taken the same action - an unusual action at that - were not alike in their openness to new information or in their wish to alter their views. The result is one more reminder of the need to qualify any image of adults as eagerly and happily readjusting their ideas in the light of new information. It is also a reminder of the presence of individual differences - at all ages - in the degree of interest brought to cognitive change.

Is change always positive? We have so far looked for change only in the direction of "positive" effects, with positive defined in terms of greater depth, more subtlety, more differentiation, or taking account of several factors and perspectives. This is not always the case. In Reiner's (1983) account, a number of parents and teachers - faced

with ideas or situations more "progressive" than they had expected - tended to retreat into less differentiated ideas.

An illustration comes from the first few weeks of the new school. The two teachers appointed had assumed that parents would know that the critical first step was the establishment of good feeling between teachers and children, and that activities would be relatively unstructured, with most of the initiative for any particular activity coming from the child. The parents, perhaps to their own surprise, found the result deeply disturbing and soon began asking the children what they had "done" each day and expressing to the School's Council concern that the teachers were "not doing anything", and that the classrooms needed more "order" and "structure" and less "chaos".

That type of conflict occurred over and over again, either between parents and teachers or among parents, with a number of teachers and parents moving back to more "conventional" ideas and to more fixed positions.

Were there then no people who changed towards being more "progressive"? Under what conditions? A few teachers and parents did so, after an initial period of doubt about whether "progressive" education could ever really work. Among the parents, those who changed were those who spent a large amount of time in the classroom. They were impressed with changes in children's attitudes, especially in the degree to which they were becoming self-managing, enthusiastic, imaginative, and helpful to each other. These changes in children, however, were difficult to communicate to people who came in briefly and saw only the surface "chaos". In effect, the evidence that could lead to a change of ideas was not highly visible. For one other parent whose ideas changed in major fashion - from being initially appalled to being enthusiastic - the evidence that overcame her original ideas was the obvious happiness and interest in reading shown by her young son, whose unhappiness and failure to read had been the spur to her willingness to try any alternative.

The point of both stories - the concern about children "not doing anything" and the cases of change - lies in the way they point to the availability and the visibility of information as conditions affecting whether or not change occurs in one's ideas.

Are some ideas more amenable to change than others? We have suggested so far that one large factor in the occurrence of change is the extent to which maintaining an idea fits a particular need or demand: it is self-protective, ego-enhancing, effort-sustaining. We now wish to point to a further possibility. Some ideas may be more deeply ingrained than others. Some may be part of a broader set of ideas, with the effect that information directed towards one has to counter not just the evidence sustaining that particular idea but also the weight of evidence supporting the rest of the set. To change what may seem to us to be a "single" idea may amount almost to a change in one's larger "world view".

We shall use Reiner's (1983) material and concepts to make those possibilities more specific. Some ideas about learning and about children, he argues, are so ingrained in today's thinking that they are extremely difficult to "think away" or to "unthink". Some of these ideas are part of a Protestant ethic: primarily, the notion that people - children especially - cannot be trusted to manage their own learning. They will "become lazy", "stop working when things get hard", "prefer to do nothing". The same ethic assumes that what is "good" for one is not likely to be pleasant. More specifically, learning will be predominantly tedious and will require forced drill.

Other ingrained ideas are part of what has been called "modern consciousness" (Berger, Berger & Kellner, 1974). These ideas cover:

: The central place given to "work", so much so that most other activities and occasions (leisure, weekends, holidays) are defined as time away from "work";

: The sharp line drawn between "work" and "play";

: The assumption that the value of any present activity rests in its preparation for the future: only the future, in fact, justifies one's present actions;

: The assumption that learning proceeds best by breaking a subject matter into small components, placing these in sequence, and working one's way through a carefully controlled sequence;

: The assumption that learning requires a "teacher", an "expert";

: The assumption that any achievement can be improved: a better way, a higher level of product, can always be found;

: The need to judge by way of visible products, preferably products that can be quantified.

The ideas least likely to change, Reiner (1983) proposes, are those that are part of today's "modern consciousness", using that term to incorporate the Protestant ethic. They are also, to take the argument a little further in a fashion proposed by Berger et al. (1974), those ideas that are continually sustained by the social structures or institutions encountered in everyday life. It is difficult, for example, to accept as valuable a school-day with no set class periods, no set "snack time" or "lunch time", as long as one continues to live in a world where segmentation of time and keeping to a schedule are taken for granted. To give up such ideas, in the analysis of Berger et al. (1974), calls for the equivalent of religious conversion.

Some Practical Implications

In the last two sections of this paper, we wish to bring out some implications: implications for deliberately changing adults' ideas and for the way we view cognitive development (among adults or children).

We shall start with some work on altering parents' ideas. That direction of work provides a good testing ground for hypotheses about adult cognitive change. It is also a reminder that intervention has been in some studies an explicit reason for studying parents' ideas. The hope is that altering ideas may prove to be a way of changing behavior that can apply to a range of practices and a range of ages, as well as being more amenable to change than are some other conditions affecting practices: conditions such as income level, for example (Schaeffer & Edgerton, in press; Sigel, in press). One might, for instance, work towards a change in knowledge about developmental timetables as a way of reducing the unrealistic expectations thought to be a factor in child abuse (Parke, 1978; Spinetta & Rigler, 1972), or towards a change in the perceived capacity to influence cognitive or scholastic achievement, thought to be a factor in the lower school achievement of some cultural groups (cf. Ghuman, 1975; Radin, 1972).

There are risks in any program of parent education. There is, for instance, the risk of programs being used as ways to eliminate cultural differences rather than to respect them, and to strengthen the dependence of parents on the advice of experts. For this and for pragmatic reasons, it is essential that we regularly ask: do parents' ideas really need changing? And what have we learned that could be helpful to remember in working towards change?

We have already suggested two general points. One is that it would be unrealistic to expect any easy change in ideas where parents had a vested interest in maintaining particular views. The other is that it would be wise to consider the compatibility of new information with ideas already held. That second type of factor is especially highlighted in a study by Frankel and Roer-Bornstein (1982). Among people from the Yemen, many

of the traditional explanations for events in pregnancy and birth were "magical" in nature. The new information stressed physical explanations. Young Yemenite mothers apparently ended in a state of suspension. When asked about miscarriage, for instance, they "failed to offer any explanation. A magical tradition may have been rejected, but nothing else seemed to take its place as an explanatory construct" (Frankel & Roer-Bornstein, 1982, p.15). Such a limbo-like state hardly seems desirable.

Suppose we take a specific case. Robyn Dolby and her colleagues have been working in a Sydney hospital with the parents of preterm babies. In addition to finding that parents benefit from watching and discussing videotapes of their babies being tested on the Brazelton scale (Dolby, English, & Warren, 1982), they have isolated a particular problem in the interaction between babies and parents. The babies often display marked motor activity, with arms and legs moving at a rapid rate. To clinicians, the activity often signals a form of distress: the infant cannot bring itself to a resting state; the movements are rigid or piston-like. In an adult, a comparable state is an agitated tiredness: one is too "wound up" to relax. To parents, however, the activity is a sign of vigor, even though the infant may be crying, and most parents take no steps to bring the activity to a stop. In fact, some take pride in the way such activity shows how "strong" the infant is.

Intervention in such counter-productive interactions seems desirable for both parent and infant: the infant is clearly distressed; the parent finds the infant's crying both stressful and puzzling. In intervening, however, it is helpful to recognize that the parents' interpretations will not be easy to set aside. In discussions with Dolby, it becomes clear that the interpretation of motor activity as distress is counter-intuitive for most parents. For parents of preterm babies, the activity is also reassuring. What they fear in their babies is a continuation of the weak, passive state they have already observed. To simply say, then, that the activity is not a "healthy" sign is likely to be ineffective. Parents would not wish to hear such a message. Nor is the message compatible with the rest of their informal knowledge, with its equation of "activity" with "vigor" and "strength", an equation reinforced by the language and the visual images encountered everyday.

Robyn Dolby is finding that, under these circumstances, the most effective steps towards change lie in demonstrating the effects of swaddling: the infant relaxes, ceases to cry, and may even smile. Only after the parent has seen demonstrated a technique that brings another desired result - a happily relaxed child - does any discussion of the meaning of the child's activity seem appropriate or useful. That order of help remains to be checked, but it has a very good fit with what we have learned about the importance of functional or affective bases to parents' ideas.

In effect, Dolby's approach brings out several aspects to intervention. One is that it is directed first towards ideas proposed as most open to change: that is, ideas about "how to", about means rather than ends or values. A second is that it highlights the need to ask: What kind of information would be compelling?

Two caveats to this picture of practical implications. The preceding comments may appear to suggest that the link between ideas and actions is a simple one, and that "actions" are all we wish to change.

There are, in fact, many sources of "slippage" between ideas and actions, operating against finding any isomorphism between the two (Goodnow, in press b). To state some of those briefly: (a) Ideas are often general, actions have to be specific to a time, a place, a task and a particular child; (b) Ideas often describe what is "good" in principle, actions more often involve specific cost-benefit assessments. In terms of advice to parents, such discrepancies may well mean that "general" advice may not be found helpful or lead to change in actions. General advice may also be set aside in favor of taking an inexpensive action even though it is perceived as having a low likelihood of

payoff, or avoiding an action that is theoretically "good" but costly in time, effort, or emotion.

The comments on intervention may also seem to suggest that the only relevant consequence of parents' ideas - and change in their ideas - lies in an effect upon parents' actions, with these actions then seen as the major or the only determinants of the way children develop. That suggestion needs qualifying on several counts.

First, it seems quite likely that children discount a number of specific parental actions ("that's just Mum losing her cool again", to use a statement recently heard) and that they often respond to parents' intentions rather than to specific actions. Second, stress on a direct link between parental actions and child outcomes ignores the importance of an intervening step: namely, the child's perception of the parents' positions (Cashmore, 1982).

Finally, reservations about too heavy a stress on parents' "actions", and on changing their "actions", stem from the way that "actions" seem to be defined in terms of "deeds", excluding "words" and implying that "words" are unimportant or are not "deeds". We would like to stress the importance of parents' words. Words provide the categories of activities (e.g. "work" and "play") and of people ("nice" and "not nice", "poor" and "well-off", "family" and "not family" etc.) that soon become taken for granted and hard to change. Parents' stated interpretations also provide children with the reasons that soon become part of the way children see the world: "you clean your teeth because ..., you work hard at school because ..., you respect your parents because ..., you give money to the poor because ...". Such words and statements seem seldom to be studied, however, as forms of parental "action". If they were fully regarded as such, we might see more advice to parents explicitly directed towards ways of making their values clear: ways of altering their statements so that they achieve a goal of importance to them, namely, "getting their message across". Such forms of intervention might alter not only the impact of parents' ideas but also, by putting parents' ideas into a shape that can be looked at and reflected upon, alter the ideas themselves.

Some Theoretical Implications

We started this round of research with several expectations drawn from prevailing approaches to cognitive development in children: expectations of change as probable, as positive, and as taking the form of constructions based on an individual's lively interest in information and his or her own active interactions with objects and people. We also started with the expectation that three broad content areas of ideas (roughly ends, means, and assessments of progress) would provide a promising base for the exploration of parents' ideas.

We may now stand back and review those expectations, especially those dealing with the probable basis of change. The adults present us with a picture of people who are not omnivorous for information. In fact, they are often resistant, with the degree of resistance to change particularly marked for some "ingrained" ideas. They also show fewer signs of readiness for growth than anticipated, and the ideas they hold are often related to functions or situation demands: sustaining effort, enhancing self-esteem, making life with children more bearable or more rewarding. Overall, there is not so far any strong evidence of any inherent push towards moving from one level of thought to another: the type of motor or motivation often proposed for change in children's thought.

We had expected to make some changes in the course of bringing a model based largely on "physical" cognition to a content area that is "social". The contrasts with our expectations, however, were more than expected. They raise four questions:

1. Does the model drawn from children's cognitive development simply not hold for adults? We shall be proposing that one difficulty in answering this question is the

relative lack of continuity in tasks (and their interest value) across the life-span. A further difficulty is the nature of the child model.

2. Does the child model we normally use need modifying? If so, in what ways? We shall be proposing that modification is needed to the expectation of change, to the emphasis on individual constructions, to the image of information as readily available, and to the degree of attention given to incentives for acquiring or providing information.

3. How did we come to use such a limited model for expectations about development? We shall be proposing that classical Piagetian models take the form they do because they are based largely on knowledge domains where "social" factors are minimal.

4. Is the division of knowledge domains into "physical" and "social" cognition the most effective division? Based largely on our answers to question (3), we shall be proposing some alternatives.

We shall take up each of these questions in turn.

Adult Thought and Children's Thought: Discontinuous?

Most of the literature on adults' reasoning is not in accord with the prevailing pictures of children's development. Adult reasoning, for instance, is usually described as based on short-cuts, prone to error, and dedicated towards saving effort. That is not the classical Piagetian child (or, we think, the Vygotskian child).

It is possible that adults lose curiosity as they grow older and no longer wish to put effort into better ideas except in special domains. Certainly the Piagetian literature begins to discuss motivation, in the form of interest in a particular subject matter, in the context of adolescence (cf. Piaget, 1972).

It is also possible, however, that there is more continuity than might appear. One problem in deciding about that is a dearth of research that takes the same topics of thought across a wide age-span. In part, topics of interest do change. The constancy of weight, for instance, once resolved as a problem, probably ceases to be an active topic of thought. There are, however, topics that remain of interest throughout the life-span, even though their specific form may change. There are also some characteristics of thinking that may be followed across a long age-span.

Those claims may sound easy to make but hard to implement. What might such topics and dimensions be? We shall start with one dimension (the quality of thought) and then consider some promising content areas.

The quality of thought. Attention to the quality of thought is extremely prominent in studies of children. In fact, one might describe the essence of the Piagetian approach as a concern with change in the quality of thought.

At the moment, work on adult social cognition seems to show less concern with differences in quality than with changes in content. The striking exception is work by Sameroff and his colleagues (cf. Sameroff, 1975; Sameroff & Feil, in press). In their view, a parent might start from a "categorical", single-factor explanation (e.g., "just a contented baby" or "just a difficult child") and shift to one that is multi-factor or "perspectivistic" (e.g., "she was slow getting started and I was inexperienced and there was no one around to help"). The approach comes from Piagetian accounts of child development.

It is not clear why the type of approach Sameroff exemplifies is under-represented in work on adult thought, when compared with work on children's thinking. It is almost as

if the assumptions exist that changes in quality will be of most interest when there are changes in capacity, and that, until old age strikes, changes in capacity are not the issue in adult development. In fact, as we have seen in the results comparing mothers with fathers, it may be the quality of ideas - in that case, the degree of conviction and of differentiation - that is the major aspect of change.

Categories of behaviors. Psychologists have always been interested in the nature of categories or groupings, with attention shifting from the way people categorize objects to the way they group people or, more recently, situations (cf. Forgas, 1982). Work with parents' ideas about children brings out the importance of considering the way people group behaviors. Parents clearly distinguish among behaviors, regarding some as more acceptable, stable, or dispositional than others (Dix & Grusec, in press; Goodnow et al., in press). They also appear to regard some as more significant than others, a point made by Dix and Grusec (in press) for social behaviors and by Schieffelin (1979) for language behaviors.

The clearest counterpart in work with children is work on "moral" development, with attention paid to the way children distinguish among various types of "transgressions" or "rule-violations" (cf. Much & Schweder, 1978; Nucci, 1981; Turiel, 1978). These studies, in Schweder's (1982) analysis, contain gaps: gaps related primarily to the way categories may be linked together, and to our knowledge of the sources that give rise to the development of some categories rather than others. The same gaps might well be explored in work on parents' categories.

Developmental "scripts" or "scenarios". We use these terms to describe the pictures people have of how the course of life is laid out: pictures that include "milestones", what may be expected at various ages, how one moves from one "stage" or "state" to another, when the best and the hardest times of one's life will be. Parents - charged with the responsibility to see that their children follow a particular set of life-course scenarios - perhaps spend more time thinking about developmental sequences and timetables than other adults do. Neugarten and Hagestad (1975), however, present us with the argument that a major part of all adult thinking consists of measuring oneself and others against expected times and progressions: for leaving school, "settling down", having children, finding a job, retiring, dying.

This type of content area appears underrepresented in work on children's cognitive development. What developmental scenarios do they have in mind? How are they acquired? What distinguishes one from another? Such questions are not unanswerable. They do move us, however, towards regarding age-span cognitive development in a new light. It may well consist of changes in the nature and the clarity of the paths one sees as connecting various parts of one's life, especially those leading from the present to the future. Such a definition of cognitive development is contained, for instance, in Bronfenbrenner's (1977) approach to the ecology of childhood, Tylor's (1978) stress on the perceptions of paths and options as a way of describing individual differences, and Poole's (1982) adaptation of Tylor's views to analyze adolescents' perceptions of progressions from school to work.

Relationships across generations. Suppose we have found some topics that are of interest across a number of age groups. Are we then limited to asking whether several age groups (e.g. a "child" and an "adult" generation) are similar? That would be a narrow view of continuity. We could readily add a check on the way one age-group perceives the thinking of the other.

At the moment, close attention to cross-generation agreement and cross-generation perceptions is largely the province of sociologists, with little actual data on perception as a mediating step (cf. Bengston & Troll, 1978; Troll & Bengston, 1979.

A gap-filling step has recently been taken by Cashmore (1982). She has compared

parents' statements about the qualities they see as important for their 12- to 14-year olds to acquire, with children's statements about the qualities they themselves see as important and about the qualities they see their parents as stressing. That type of work brings out an interesting result: for most qualities, the best predictor of the adolescents' positions is their perception of the parents' positions. The exceptions to this perceived agreement with parents are qualities where parents and adults seem to have different vested interests ("being neat"and "being obedient"). The result underlines again the importance of considering both information and interests as determinants of ideas. It also demonstrates the way one may use a single content area to explore not only the presence of similarity but also its basis.

Overall, there is no shortage of promising topics that would allow us to ask more precisely about similarities in adult and child thought and about the extent to which the same model of development might apply. We shall make only restricted progress, however, if at the same time the child model does not come up for review.

Modifying the Traditional Child Model

For us, the traditional model is the Piagetian model, with its emphasis on children individually and rationally building up a picture of their world - constructing reality - on the basis of their driving curiosity and their active exploration of that world. The main restraint on change is the individual's capacity to take in information that is readily available. The model is thought to apply equally to the understanding of the "physical" and the "social" domain i.e. to a world of objects and a world of people.

We still have a great deal of respect for the Piagetian model, even while we work for expansions and qualifications. One familiar re-examination takes the form of asking whether the same model fits equally well the domains of "physical" and "social" cognition. We would like to set that aside for the moment and ask instead: Based on what we have seen of adult thought, what would we now wish to add to the picture of how change comes about? What questions would we now raise, starting from the assumption that the factors affecting adult thought must have some representation in our picture of children's thinking?

We suggest a second look at (a) the expectation of change, (b) the emphasis on individual constructions; (c) the notion of information as readily available; and (d) the need to consider motives and incentives for either acquiring or providing information.

The expectation of change and improvement. We started the adult research with an expectation that adults would be interested in new ideas and in "fine-tuning" their ideas to fit with new information. We have come to see the need for an alternative model, one proposing that parental ideas and practices display more continuity than change (Roberts, Block & Block, 1981). A simple choice between two working models (change or no change) is not the task to be faced. The real problem turns out to be a question of specifying particular conditions that produce change, the particular ideas that are more or less likely to be altered, and the people who are more or less interested in change.

We have now begun to consider that the child model may display an excessive interest in change, with less attention given than is warranted to the maintenance of ideas or to resistance to change. There is room for a shift in emphasis. The Piagetian model does contain a place for assimilation: a process by which the thinker resists new information, protecting himself or herself from instability or chaos, from being pulled in too many different directions by new material. Assimilation, however, seems to have been a far less studied process than the accommodation looked for in training studies or studies of environmental effects. There is also a place for resistance to change in the discussion of adolescence and the achievement of formal operational thought. In the face of wide individual differences in the occurrence of this achievement and large

effects from the type of material being thought about, Piagetian theory (Piaget, 1972) has come to include a role for motivation and interest. The inclusion recognizes both the effect of specific experience and the effort involved in improving one's ideas. It is difficult to believe, however, that children do not - at least in some domains - proceed in just the same pragmatic, expedient way that adults seem to most of the time. We would now be encouraged to look for "adult-type" procedures and heuristics in children's work. We would also, in any theory, look more carefully for accounts not only of the way new ideas are acquired but also of the way old ideas are maintained and new ideas resisted.

The emphasis on individual constructions. The individual in classical Piagetian theory is relatively solitary. His or her own activities count most in the construction of ideas, with other people playing primarily the role of offering discrepancies that can lead to some modification of the original thought.

In our adult research, however, we have found a number of widely-shared ideas, with individual differences less apparent than would be expected from the diversity of parenting experience. One possible explanation is that the apparent diversity of experience still allows a number of achieved ideas to be like one another. An alternate way of looking at the pattern is to begin considering some ideas as not being achieved at all on the basis of individual construction. One might consider three possibilities:

(a) Information gained from an individual's direct interactions with the targets of thought (people or objects), and from active thought;

(b) Information recieved in more passive fashion from others, peers or adults: "pre-packaged" in Schweder's (1982) terms. Ideas acquired in this fashion might be particularly expected to be shared by members of a group, to be "collective representations" (Shweder, 1982).

(c) Information gained and validated in the course of negotiations and discussions with one's peers. This is, for instance, the type of source stressed by Youniss (1982) in his analysis of children's acquisition of moral judgments.

As the references to Schweder (1982) and Youniss (1982) indicate, the second and third sources of ideas are now becoming visible in the literature on children's thinking. Also emerging in that literature is a closer attention to the specific ways in which meanings are "negotiated" (Youniss, 1982) or "cultural messages" transmitted (Much & Schweder, 1978; Shweder, 1982).

The debate between Shweder (1982) and Youniss (1982) is concentrated on children's acquisition of moral reasoning. It can well extend beyond that area. As Damon (1983) notes, all social relationships and social cognitions involve "the transmission of culture". So also does the acquisition of ideas about the nature of "intelligent behaviors" (Goodnow, 1976). In fact, the sociological literature on negotiated meanings and cultural transmission covers every area of knowledge. For developmental psychologists, the problem is one of bringing general ideas into specifiable form, and of working out which ideas are likely to be more individually vs. socially constructed, and more actively vs. passively acquired.

Information: How Readily Available? Work on parents' ideas brings a reminder that information is not always available in a form that prompts further thought. It brings also a question about the availability of information for children.

Availability in the research studies we have reported first surfaced in Reiner's (1983) comments on variations in the "visibility" of evidence to parents in an alternative school. Other material with adults contains the same theme. It is, for instance, part of Clarke-Stewart's (1978) work on the kind of advice that is presented to parents in "primers for parents". It is especially prominent in reminders by Sameroff and his

colleagues that "expert" advice may not encourage differentiated thought (e.g. advice to the effect that "nothing can be done with children like this"), and that the evidence often encountered by parents may not allow them to choose among alternative explanations. A child who is healthy and "progressing well", for example, may confirm a variety of hypotheses about the source of success: from a belief in magic to a belief in the quality of one's genes or one's parenting (cf. Sameroff, 1975; Sameroff & Feil, in press).

Does a picture of limited information also apply to children's thought?

The classical tradition - for physical or social cognition - points us towards a view of the environment as benignly offering all the information needed, with the main restrictions on change coming from the individual's capacity to absorb or the extent to which information has been cast into an absorbable form. Once one begins to look at ideas about the social world, however, it seems more and more doubtful that such an open state exists. Adults often have vested interests in children holding to particular views about the world, and in managing the social ideas they are exposed to. Increasingly, scholars are suggesting that similar factors may apply to the ideas children are encouraged to develop all events. One such proposal is Glick's (in press) argument that adults may deny opportunities for the kind of experimentation needed to explore a new idea, or may present "rigged" information. In his view, our accounts of the world of information children meet have been too benign. A related but broader proposal is that knowledge - about either the social or physical world - is seldom presented in "neutral" form (as available to all). It is instead often tagged as "owned", as "belonging" to particular people (cf. Foucault, in Sheridan, 1980). For psychologists, an example is the way people often present ability in mathematics as being more "natural", "relevant", or "appropriate" for girls than for boys. That "ownership" tag is one we now recognize as affecting children's ideas about the sources of skill and the level of skill they acquire (Parsons, Adler, & Kaczala, 1982).

Motives for acquiring or providing information. The section on availability of information has already raised the issue of motives as affecting the providing of information. The outside world, we have suggested, is not as disinterested in the child's acquisition of ideas as the classical picture may suggest. We shall concentrate at this point on the need to give more stress than the classical picture normally does to motives or incentives for acquiring and changing ideas.

Within the adult research we have reported, a recurring theme has been the extent to which ideas are linked to their functions. It is useful, for instance, to believe that "good" behaviors will last and "less desirable" behaviors will change (Goodnow et al., in press) or that one has most influence over the qualities regarded as most important (Knight, 1983). A stress on function, in fact, seems to turn up regularly in discussions of parents' ideas, especially among historians and anthropologists. As an historian considering changes in ideas about child labor, for instance, Rosenkrantz (1978) points to evidence that a preceding factor was a decline in the need for such labor and a rise in the extent to which children competed with adults in a shrinking labor market. As an anthropologist, Irvine (1982) takes two psychologists to task for using the term "ideology" in referring to parents' ideas, without specific attention to the "function" of those ideas in the general society. Minturn and Lambert (1964) make that point specific by arguing that the size of one's living space is a major factor in one's child-rearing practices and in one's ideas about the needs of children.

Where is the equivalent emphasis on function, interest, or value in descriptions of children's thinking? The model of wide-ranging curiosity, of intrinsic motivation, has been our major guide. It may well need some qualification. That possibility we had thought novel. It emerges, however - a point we had not noticed until recently - in Flavell's first model of social cognition. Individuals may vary, he suggested, in the extent to which they feel "disposed" to learn more about themselves or about others and in their "awareness . . . of when and why one might or should try to take readings of such objects" (Flavell, 1977, pp. 121-122).

Where might such proposals lead us? A simple choice between two models - an intrinsic interest in new information, and an interest based on need, function or motivation - would not be productive. The task to be faced is one of working out the conditions under which the two types of process interact or predominate. At the moment, the clearest example of such a research direction appears to lie within attribution theory, with its double consideration of attributions as based both upon ego-enhancement and upon the opportunities for gaining information (cf. Dix & Grusec, in press).

Also to be faced is the task of finding a place for affect in one's models of cognitive development, applied either to children or to adults. It is not feasible to start considering motives or functions and then not proceed to considering affect. Locating a place for affect, however, is not easy in discussions of cognition (Goodnow, in press b). In fact, that is one of the dilemnas that seems to pervade the papers in this symposium. We all seem to be finding that once we move into "social" cognition, we are faced more rapidly than usual with motives and, as part of that confrontation, with affect. It might be said, overall, that psychologists have placed most of their emphasis to date on relationships between thinking and acting. The time has come to look at "the trinity" of thinking-acting-feeling (Flavell & Ross, 1981). What we are adding is the proposal that the same "trinity" might well be thought of as occurring in areas of "physical" cognition also.

Sources for a limited model of cognition

Given the number of modifications suggested for the model we carried over from research with children, we have come to ask: How did such a limited model come to prevail? (We consider it as not having been confined to our own thinking). The question is not purely historical. It has, on the contrary, led us to think about the general nature of knowledge domains and about the value of a distinction between "physical" and "social" cognition.

Briefly, we wish to propose that a model of development that stresses intrinsic curiosity, freely available information, and minimal interference or help from others arises when we pay attention to some particular content areas. These are areas where:

: Other people have few vested interests in making sure that particular ideas are acquired. Outside school settings, for instance, people may not care greatly about the extent to which one has absorbed the current state of knowledge about dinosaurs, rocks, or transport systems. They do care, however, about the acquisition of some particular ways of defining "responsibility", "obligation", or "belief in God", and they are prepared to put effort into the management of information so that those particular ways of thinking are acquired.

: Other people have an interest but consider that information does not need to be managed because the ideas are expected to be acquired easily or without effort on their part. The perceived ease of acquisition may have several sources: the world may be seen as full of relevant information, for instance, or recovery from error may not be seen as difficult. Whatever the source, the overall impact is one of little help or interference from others.

: A number of alternative views do not conflict with one another. In the face of few conflicting perspectives, for instance, the decisive factor in choosing among ideas may well come to be "logical necessity" rather than expedience or compromise.

: It is feasible to acquire information by direct manipulation of the material. It is feasible, for instance, to squeeze clay, drop pebbles, or rearrange materials. In fact, this may be the only way to gain information. Some other physical materials may not be so available for experiment. People also are not so readily available. They

may, in fact, become irritable with one's attempts to "pull strings" or to experiment in the interest of defining limits.

Those several possibilities - few vested interests and a lesser assigned importance, a trust in learning as likely to occur, the absence of many conflicting views, and the feasibility of experimentation - seem to us to hold for such knowledge areas as conservation of amount, weight, volume or number. It is the prominence of such topics in the classical Piagetian tradition, we suggest, that helps give rise to the classical stress on individual constructions, intrinsic motivation, and an inherent push for progression from one level to another. In areas of knowledge where the same features do not apply, the same model may also become less appropriate.

Knowledge domains : "Physical" or "Social"?

We have suggested, in the preceding section, that particular models of cognitive development have varying degrees of fit with particular content areas of knowledge. We have also suggested some ways of distinguishing among knowledge domains.

What impact do those distinctions among domains have on a currently prominent distinction: that between "physical" and "social" cognition? A variety of ways in which "physical" and "social" cognition differ has already been proposed (cf. Flavell & Ross, 1982). We are now ready to add to these. In fact, we are now at a point of proposing that other distinctions may take precedence and may make the "physical" - "social" distinction at best a form of shorthand.

We have already suggested that knowledge areas vary along several dimensions: in the extent, for example, to which they involve vested interests in particular views, confidence that learning will take place, the likelihood of encountering conflicting views, and the feasibility of direct experimentation or direct questions. We may easily add to those features. All topics, for instance - regardless of the "physical" or "social" tag - seem to vary in the extent to which they are likely to be thought about throughout life. The constancy of an object's weight, for instance, is a topic that seems likely to be mastered and then not actively thought about again. It becomes "taken-for-granted". The constancy and the nature of friendship, however, may be another matter. All topics also - again regardless of the "physical" or the "social" tag - seem likely to vary in the extent to which they offer incentives for "good-enough" as against "complete" thinking-through. Finally, topics for thought are likely to vary in the extent to which useful information is available. The availability may reflect "the state of the art" or the presence of vested interests (one's own or those of "significant others").

What we call the "social domain" or "social cognition", we suggest, contains more topics that are thought about throughout life, more topics for which information is not freely available, more topics that call for juggling a variety of "weak" cues rather than allowing direct experimentation (inviting the use of "short-cuts" such as judging from stereotypes), more topics that evoke an "evaluative" stance, and more topics where vested interests are strong.

Such dimensions for describing different knowledge domains, we suggest, may at times coincide with "physical"-"social" distinctions. They need not coincide. It is possible, for instance, to see an area such as the acquisition of ideas about time or space as being, in some cultures, areas of high social importance, marked affect, regular concern about progress, and carefully managed information. In similar fashion, there are undoubtedly areas of "social" cognition where one may be able to use the procedures that usually apply in "physical" areas. In some contexts, for instance, it is feasible to use direct personal questions as a way of learning about people, or to alter their work environments to determine effects. Such contexts may be especially liable to occur whenever people move towards the status of objects, or whenever the relationship of people (as in a legal context) contains an accepted departure from the usual methods of gaining information about people from people.

A Final Comment

We began with a specific interest in parents' ideas about development and parenting, an interest that seemed quite properly labelled as "adult social cognition". We began also with the general goal of placing this research in a broader context and of using it as a way to broaden the usual picture of what cognitive development covers and how it proceeds.

The first goal was the more readily achieved. We have emerged with both data and with a number of promising possibilities for further research. The area is clearly viable and profitable, both in terms of the information it adds to our knowledge of parenting and socialization and in terms of its use as a vehicle for exploring changes in adult thought that are positive rather than deteriorating in quality.

The second goal has required the more thought. We have found it necessary to look more closely at continuities and discontinuities between descriptions of children's thinking and descriptions of adult's thinking. Some of the discontinuity, we suggest, is more apparent than real. Much of it suggests a "revisionist" look at classical models of children's cognitive development, with modifications in the direction of paying more attention to received and negotiated knowledge, to the availability of information, to the impact of motives and incentives for acquiring or providing information, and to the role of affect.

We also found it necessary to look more closely at the distinction between "physical" and "social" cognition, and at the way particular models of cognitive development are related to particular features of a knowledge domain. A model that sees change as based primarily on omnivorous curiosity, active experimentation, and information limited only by one's capacity to absorb it, for instance, may fit best knowledge areas where people are happily left to their own devices. It will fit less well - regardless of whether the area is "physical" or "social" - whenever the nature of the material or the intervention of other people cuts down the possibility of experimentation or leads to information being provided in more managed form.

All told, the effort underlines the value and the feasibility of exploring areas such as parents' ideas about development, both in their own right and as ways or increasing our understanding of adult cognitive development and cognitive development in general : child or adult, "physical" or "social".

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